Jiamin Wan
Earth Sciences Division, Mail Stop 84-171
E.O. Lawrence Berkeley National Laboratory, 1 Cyclotron Road, Berkeley, CA 94720
510 486-6004, jwan@lbl.gov

Biographical Summary

Jiamin Wan's graduate education is in geochemistry and hydrology. Since graduation, she has been employed in the Earth Sciences Division of Lawrence Berkeley National Laboratory, and is currently a Staff Scientist. Her research is focused on interfacial, wetting, and capillary phenomena in geologic materials, and on biogeochemical reactions and subsurface transport of contaminants, colloids and nano-particulates. Her studies under high pressure reservoir conditions combine pore-scale microscopy of fluid interfacial dynamics with surface spectroscopy and macroscopic interfacial measurements to understand mechanisms controlling CO_2, water, and oil interactions. She currently has over 60 publications in peer-reviewed journals. She has been the lead principal investigator for many projects over the past two decades, obtaining funding through competitive peer-reviewed processes.

Research Interests

- **Colloidal and interfacial phenomenon in hydrogeological media:** colloid stability, partitioning, and transport; fluid-fluid interfacial tensions under atmosphere and elevated (deep subsurface) pressures and temperatures.
- **Contaminant biogeochemistry and plume remediation:** studies of reactions, transport, and remediation of contaminants including U, Cr, and I^{129}.
- **Soil C and N transport and transformations and their impacts on C cycling:** from the unsaturated zone to groundwater.
- **Geological CO_2 sequestration:** studies of mechanisms controlling minerals, CO_2, water, and oil reactions with pore-scale microscopy, surface spectroscopy, and macroscopic interfacial measurements under elevated P-T conditions.
- **CO_2 enhanced oil recovery (CO_2-EOR):** developing new CO_2 foam systems to control CO_2 mobility.
- **Hydraulic fracturing:** developing new CO_2-based fracturing fluids and understanding the fluids-rock interactions.

Education

- Ph.D. Hydrology, 1989-1993, New Mexico Institute of Mining and Technology, NM, USA
- Ph.D. Candidate in Geochemistry, 1986-89, New Mexico Institute of Mining and Technology, NM, USA (past the candidacy exams and then switched to Hydrology)
- M.S. Geochemistry, 1981-84, Institute of Geochemistry, Chinese Academy of Science, China
- B.S., Chemistry, 1977-1981, Beijing University of Iron and Steel Technology, China

Professional Experience

- 1997- present: Staff Geological Scientist, Earth Sciences Division, LBNL
- 1995 -1997: Scientist, Earth Sciences Division, LBNL
- 1993 -1995: Postdoctoral Research Fellow, Earth Sciences Division, LBNL

- 1989 -1993: Graduate Research Associate in Hydrology, New Mexico Tech, NM
- 1984 -1986: Research Associate, Institute of Geochemistry, Chinese Academy of Sciences

Peer-reviewed Publications

1. Tokunaga, T. K., **J. Wan**, J.-W. Jung, T. W. Kim, Y. Kim, and W. Dong, Capillary pressure and saturation relations for supercritical CO_2 and brine in sand: High-pressure $P_c(S_w)$ controller/meter measurements and capillary scaling predictions, Water Resour. Res., 49, 4566–4579, 2013.
2. Tokunaga, T.K., and **J. Wan**, Capillary pressure and mineral wettability influences on reservoir CO_2 capacity. *in* Reviews in Mineralogy and Geochemistry, D.J. DePaolo, D.R. Cole, A. Navrotsky, and I.C. Bourg, eds., Vol. 77, Chapter 14, pp. 481-503, 2013.
3. Torkzaban, S., S. A. Bradford, **J. Wan**, T. K. Tokunaga, and A. Masoudih, Release of quantum dot nanoparticles in porous media: role of cation exchange and aging time, Environ. Sci. Technol., 47, 11528-11536, 2013.
4. **Wan, J**., T. K. Tokunaga, W. Dong, M. E. Denham, and S. S. Hubbard, Persistent source influences on the trailing edge of a groundwater plume, and natural attenuation timeframes: The F-Area Savannah River Site, Environ. Sci. Technol. 46, 4490−4497, 2012.
5. Tokunaga, T.K., **J. Wan**, and M.E. Denham, Estimates of vadose zone drainage from a capped seepage basin, Vadose Zone J., web-released 2012.
6. Dong, W., T.K. Tokunaga, J.A. Davis, **J. Wan**, Uranium(VI) adsorption and surface complexation modeling on background sediments from the F-Area, Savannah River Site, Environ. Sci. Technol. 46, 1565-71, 2012.
7. Jung, J. and **J. Wan**, Supercritical CO_2 and ionic strength effects on wettability of silica surfaces: Equilibrium contact angle measurments, Energy & Fuels, 26, 6053-6059, 2012.
8. Kim, Y., **J. Wan,** T. J. Kneafsey, and T. K. Tokunaga, Dewetting of silica surfaces upon reactions with supercritical CO_2 and brine: Pore-scale studies in micromodels, Environ. Sci. Technol., *46* (7), pp 4228–4235, 2012.
9. Torkzaban, S., **J. Wan**, T.K. Tokunaga, S. A. Bradford, Impacts of bridging complexation on the transport of surface-modified nanoparticles in saturated sand, Journal of Contaminant Hydrology 136–137, 86–95, 2012.
10. Tokunaga, T. K., Y. Kim, J. Wan, L. Yang, Aqueous uranium(VI) concentrations controlled by calcium uranyl vanadate precipitates. Environ. Sci. Technol. 46, 7471-7477, 2012.
11. **Wan, J**., W. Dong, T. K. Tokunaga. Method to attenuate U(VI) mobility in acidic waste plumes using humic acids, Environ. Sci. Technol. 45, 2331-2337, 2011.
12. Torkzaban, S., **Wan**, **J.,** Kim, Y., Mulvihill, M., and Tokunaga, T. K., Transport and deposition of functionalized CdTe nanoparticles in saturated porous media. J. Contaminant Hydrology, 118, 208-217, 2010.
13. Mulvihill, M.J., S.E. Habas, I.J. La Plante, **J. Wan**, and T. Mokari, The influence of size, shape, and surface coating on the stability of aqueous nanoparticle suspensions, J. Phys. Chem, 22 (18), 5251–5257, 2010.
14. **Wan, J.**, Y. Kim, T.K. Tokunaga, Z. Wang, S. Dixit, C.I. Steefel, E. Saiz, M. Kunz, and N. Tamura. Spatially resolved U(VI) partitioning and speciation: Implications for plume scale behavior of contaminant U in the Hanford vadose zone. Environ. Sci. Technol. 43, 2247-2253, 2009.
15. Tokunaga, T.K., Y. Kim, and **J. Wan**. Potential remediation approach for uranium-contaminated groundwaters through potassium uranyl vanadate precipitation. Environ. Sci. Technol., 43, 5467-5471, 2009.

16. **Wan, J.,** T.K. Tokunaga, Y. Kim, E. Brodie, R. Daly, T.C. Hazen, and M.K. Firestone. Effects of organic carbon supply rates on uranium mobility in a previously bioreduced contaminated sediment. Environ. Sci. Technol. 42, 7573-7579, 2008.

17. Tokunaga, T.K., **Wan, J**., Kim, Y., R.A. Daly, E.L. Brodie, T.C. Hazen, D. Herman, and M.K. Firestone. Influences of organic carbon supply rate on uranium reduction in initially oxidizing, contaminated sediment. Environ. Sci. Technol. 42, 8901-8907, 2008.

18. **Wan, J**., T.K. Tokunaga, Y. Kim, Z. Wang, A. Lanzirotti, E. Saiz, and R.J. Serne, Effect of saline waste solution infiltration rates on uranium retention and spatial distribution in Hanford sediments, Environ. Sci. Technol., 42, 1973-1979, 2008.

19. Tokunaga, T.K., **J. Wan**, Y. Kim, S.R. Sutton, M. Newville, A. Lanzirotti, and W. Rao. Real-time X-ray absorption spectroscopy of uranium, iron, and manganese in contaminated sediments during bioreduction. Environ. Sci. Technol., 42, 2839-2844, 2008.

20. Zheng, Z., G. Zhang, **J. Wan**, Reactive transport modeling of column experiments on the evolution of saline-alkaline waste solutions, Journal of Contaminant Hydrology, 97, 42-54, 2008.

21. He, Y.T., **J. Wan**, and T.K. Tokunaga, Kinetic stability of hematite nanoparticles: the effect of particle sizes, J. Nanopart. Res., 10:321-332, 2008.

22. Faybishenko, B., T. C. Hazen, P. E. Long, E. L. Brodie, M. E. Conrad, S. S. Hubbard, J. N. Christensen, D. Joyner, S. E. Borglin, R. Chakraborty, K. H. Williams, J. E. Peterson, J. Chen, S. T. Brown, T. K. Tokunaga, **J. Wan**, M. Firestone, D. R. Newcomer, C. T. Resch, K. Cantrell, A. Willett, and S. Koenigsberg, In situ long-term reductive immobilization of Cr(VI) in groundwater using Hydrogen Release Compound, E*nviron. Sci. Technol.*, 42 (22), 8478-8485, 2008.

23. Tokunaga, T.K., **J. Wan,** A. Lanzirotti, S.R. Sutton, and M. Newville, Long-term stability of organic carbon-stimulated chromate reduction in contaminated soils, and its relation to manganese redox status, Environ. Sci. Technol., 41 (12) 4326-31, 2007.

24. **Wan, J.**, T. Tyliszczak, T.K. Tokunaga, Organic carbon distribution and elemental correlations: Applications of STXM and NEXAFS spectroscopy, Geochim. Cosmochim. Acta, 71, 5439-49, 2007.

25. McKinley, J. P., J. M. Zachara, **J. Wan**, D. E. McCready, and S. M. Heald, Geochemical controls on contaminant uranium in vadose Hanford formation sediments at the 200 Area and 300 Area, Hanford Site, Washington, Vadose Zone J. 6(4) 1004–1017, 2007.

26. Brodie, E.L., T.Z. DeSantis, D.C. Joyner, S. Baek, J.T. Larsen, G.L. Andersen, T.C. Hazen, D.J. Herman, T.K. Tokunaga, "J.M.M." Wan, and M.K. Firestone, Application of a high-density oligonucleotide microarray approach to study bacterial population dynamics during uranium reduction and reoxidation. Appl. Environ. Microbiol. 72:6288-6298, 2006.

27. Zheng, Z., **J. Wan**, and X. Song. Sodium meta-autunite colloids: Synthesis, characterization, and stability. Colloids Surfaces A. Physicochemical Eng. Aspects, 274, 48-55, 2006.

28. **Wan, J.** and T.K. Tokunaga, Comments on "Pore-scale visualization of colloid transport and retention in partly saturated porous media", Vadose Zone J., 4, 954-956, 2005.

29. Tokunaga, T.K., K.R. Olson, and **J. Wan**, Infiltration flux distributions in unsaturated rock deposits and their potential implications for fractured rock formations. Geophys. Res. Lett. 32, L05405, doi:10.1029/2004GL022203, 2005.

30. **Wan, J.**, T.K. Tokunaga, E. Brodie, Z. Wang, Z. Zheng, T.C. Hazen, M.K. Firestone, S.R. Sutton, Reoxidation of bioreduced U under reducing conditions. Environ. Sci. Technol., 39, 6162-69, 2005.

31. Tokunaga, T. K., **J. Wan**, J. Pena, E. Brodie, M.K. Firestone, and T.C. Hazen, Uranium reduction in sediments under diffusion-limited transport of organic carbon, Environ. Sci. Technol., 39, 7077-83,

2005.

32. Zhang, G., Z. Zheng, **J. Wan**, Modeling reactive geochemical transport of concentrated aqueous solutions in variably saturated media. Water Resour. Res., 41, W02018, doi: 10.1029/ 2004 WR003097, 2005.
33. Zheng, Z. and **J. Wan**, Release of contaminant U(VI) from soils, Radiochim. Acta, 93, 1–7, 2005.
34. Tokunaga, T.K., **J. Wan**, J. Pena, S.R. Sutton, and M. Newville. Hexavalent uranium diffusion in soils from concentrated acidic and alkaline solutions. Environ. Sci. Technol. 38, 3056-3062, 2004.
35. **Wan, J**., T.K. Tokunaga, J.T. Larsen, and R.J. Serne, Geochemical evolution of highly alkaline and saline tank waste plumes during seepage through vadose zone sediments, Geochim. Cosmochim. Acta. 68, 491-502, 2004.
36. **Wan, J.**, J.T. Larsen, T.K. Tokunaga, Z. Zheng, pH neutralization and zonation in alkaline-saline tank waste plumes. Environ. Sci. Technol. 38, 1321-1329, 2004.
37. **Wan, J.**, T.K. Tokunaga, E. Saiz, J.T. Larsen, Z. Zheng, R.A. Couture, Colloid formation at waste plume fronts. Environ. Sci. Technol. 38, 5603-5608, 2004.
38. Tokunaga, T.K., K.R. Olson, and **J. Wan**. Conditions necessary for capillary hysteresis in porous media: Tests of grain-size and surface tension influences. Water Resour. Res. 40, W05111, 2004.
39. Zheng, Z., T.K. Tokunaga, and **J. Wan**, Influence of calcium carbonate on U(VI) sorption to soils. Environ. Sci. Technol. 37, 5603-5608, 2003.
40. Tokunaga, T.K., **J. Wan**, T.C. Hazen, E. Schwartz, M.K. Firestone, S.R. Sutton, M. Newville, K.R. Olson, A. Lanzirotti, and W. Rao. Distribution of chromium contamination and microbial activity in soil aggregates. J. Environ. Qual. 32, 541-549, 2003.
41. Tokunaga, T.K., K.R. Olson, and **J. Wan**, Moisture characteristics of Hanford gravels: Bulk, grain-surface, and intragranular components. Vadose Zone J. 2, 322-329, 2003.
42. Tokunaga, T.K., **J. Wan**, M.K. Firestone, T.C. Hazen, K.R. Olson, D.J. Herman, S.R. Sutton, and A. Lanzirotti, In-situ reduction of Cr(VI) in heavily contaminated soils through organic carbon amendment. J. Environ. Qual. 32, 1641-1649, 2003.
43. **Wan, J**., T.K. Tokunaga, Partitioning of clay colloids at air-water interfaces, J. Colloid Interface Sci. 247, 54-61, 2002.
44. Tokunaga, T.K., **J. Wan**, and K.R. Olson, Saturation-matric potential relations in gravel. Water Resour. Res., 38(10), 1214, 2002.
45. **Wan, J**., S. Veerapaneni, F. Gadelle, and T.K. Tokunaga, Generation of stable micro-bubbles and their transport through porous media, Water Resour. Res., 37, 1173-1182, 2001.
46. Tokunaga, T.K., and **J. Wan**, Surface-zone flow in unsaturated rock fractures, Water Resour. Res., 37, 287-296, 2001.
47. **Wan, J**., S. Veerapaneni, F. Gadelle, and T.K. Tokunaga, Generation of stable micro-bubbles and their transport through porous media, Water Resour. Res., 37, 1173-1182, 2001.
48. Tokunaga, T.K., and **J. Wan**, Approximate boundaries between different flow regimes in fractured rocks. Water Resour. Res., 37, 2103-2111, 2001.
49. Gadelle, F., **J. Wan**, and T.K. Tokunaga. Removal of U(VI) from contaminated sediments by surfactants, J. Environ. Qual., 30, 470-478, 2001.
50. Tokunaga, T.K., J. Wan, M.K. Firestone, T.C. Hazen, E. Schwartz, S.R. Sutton, M. Newville, Chromium diffusion and reduction in soil aggregates, Environ. Sci. Technol., 35, 3169-3174, 2001.

51. Veerapaneni, S., **J. Wan**, and T. K. Tokunaga, Particle motion in film flow, Environ. Sci. Technol., 34, 2465-2471, 2000.

52. **Wan, J**., T.K. Tokunaga, T. Orr, and J. O'Neill, Glass casts of rock fractures: A new tool for studying flow and transport, Water Resour. Res., 36, 355-360, 2000.

53. Tokunaga, T.K., **J. Wan**, and S.R. Sutton. Transient film flow on rough fracture surfaces, Water Resour. Res., 36, 1737-1746, 2000.

54. **Wan, J.** and T.K. Tokunaga, Measuring partition coefficients of colloids at air-water interfaces, Environ. Sci. Technol., 32, 3293-3298, 1998.

55. **Wan, J**. and T.K. Tokunaga, Film-straining of colloids in unsaturated porous media: conceptual model and experimental testing, Environ. Sci. Technol., 31, 2413-2420, 1997.

56. Tokunaga, T.K. and **J. Wan**, Water film flow along fracture surfaces of porous rock, Water Resour. Res., 33, 1287-1295, 1997.

57. **Wan, J**., T.K. Tokunaga, C.F. Tsang, and G.S. Bodvarsson, Improved glass micromodel methods for studies of flow and transport in fractured porous media, Water Resour. Res., 32, 1955-1964,1996.

58. **Wan, J**., T.K. Tokunaga, and C.F. Tsang, Bacterial sedimentation through a porous medium, Water Resour. Res., 31, 1627-1636,1995.

59. **Wan, J**., T.K. Tokunaga, and C.F. Tsang, Bacterial sedimentation through porous media. Water Resour. Res. 31:1627-1636, 1995.

60. **Wan, J**., and J.L. Wilson, Colloid transport in unsaturated porous media, Water Resour. Res., 30, 857,1994.

61. **Wan, J**., J.L. Wilson, and T. Kieft, Influence of the gas-water interface on transport of microorganisms through unsaturated porous media, Appl. Environ. Microbio., 60, 509 1994.

62. **Wan, J.** and J.L. Wilson, Visualization of the role of the gas-water interface on the fate and transport of colloids in porous media, Water Resour. Res., 30, 11-23, 1994.

Selected Conferences, Seminars, and Invited Talks

Wan, J., Frontier research on CO_2 utilization, School of Environmental Science & Technology, Dalian University of Technology, China, April 3rd, 2014, invited talk.

Wan, J., Effects of supercritical CO_2 on mineral wettability and multi-phase residual trapping, School of Environmental Science & Technology, Dalian University of Technology, China, April 1st, 2014, invited talk.

Wan, J., W. Dong, T.K. Tokunaga, K.H. Williams, Y. Kim, M.E. Conrad, B. Gilbert, P.E. Long, S. Hubbard, Carbon transport and transformation from vadose zone to groundwater, Goldschmidt, June 10 th, Sacramento, California, 2014.

Wan, J., Y. Kim, P. Bikkina, T.K. Tokunaga, and S. Wang, Wetting behavior of supercritical CO_2 and brine on mica surfaces and in silica pores, NCGC Workshop October 31, 2013. Oral presentation.

Wan, J., T.K. Tokunaga, Y. Kim, J. Jung, T.W. Kim, CO_2 reaction induced wettability alteration and its impacts on CO_2 storage: pore to core scale reservoir condition experimental studies, AGU Fall Meeting, 9-13 December, 2013.

Wan, J. and T. Tokunaga, Developing a CO_2-based, effective and low-cost, green hydraulic fracturing fluid. The ITF (Industry Technology Facilitator) technical clarification meeting, Houston, TX, April 30, 2013.

Wan, J., T. Tokunaga, Y. Kim, T. Kim, and J. Jung, Wettability alteration and its impacts on CO_2 storage in deep reservoirs: High P, T experimental studies. Earth Sciences Division Review, March 15, 2013. Oral presentation.

Wan, J., Reducing CO_2 mobility for oil recovery and geological carbon sequestration, *Carbon Cycle 2.0, LDRD Workshop, November 30, 2012. Invited talk*

Wan, J., Y. Kim, J. Jung, and T. Tokunaga, Interfacial property effects on CO_2 mobility and residual trapping. The NCGC, DOE/BES Energy Frontier Research Center Workshop, October 18-19, 2012. Oral presentation.

Wan, J., Y. Kim, J. Jung, De-wetting of silica surfaces upon reactions with supercritical CO_2. 34^{th} International Geologic Congress, Brisbane, AU, August 6-10, 2012.

Wan, J., Y. Kim, J. Jung, T. Kneafsey, and T. Tokunaga, Wettability of silica upon reaction with supercritical CO_2. Sally Benson Lab, Stanford University, February 27, 2012. Invited talk.

Wan, J., Y. Kim, and J. Jung, Wettability alteration of mineral surfaces upon reaction with supercritical CO_2. DOE Review of EFRC-NCGC, Denver, Jan. 23, 2012.

Wan, J., W. Dong, T. K. Tokunaga, M. Denham, J. Davis, and S. Hubbard, Understanding and predicting plume development at F-Area, Savannah River Site. Sustainable Systems SFA Winter Retreat, Jan. 12-13^{th}, 2012. Oral presentation.

J. Jung and **J. Wan**, Wettability alteration upon interaction with $scCO_2$: silica, mica, and calcite, AGU Fall Meeting, San Francisco, December 5-9, 2011. Oral presentation.

Kim, Y., **J. Wan**, T.J. Kneafsey, T.K. Tokunaga, Pore scale studies of wettability changes in a supercritical CO_2-brine-silica system using micromodels, AGU Fall Meeting, San Francisco, December 5-9, 2011.

Dong, W., **J. Wan**, T.K. Tokunaga, M. Denham, J. Davis, S. Hubbard, Surface complexation modeling of U(VI) adsorption onto Savannah River Site sediments, AGU Fall Meeting, San Francisco, December 5-9, 2011.

Wan, J., W. Dong, T. Tokunaga, J. Davis, M. Denham. U(VI) Adsorption behavior in F-Area, Savannah River Site. Attenuation- Based Remedies in Subsurface- 2011 Technical Meeting, Aiken SC, March 29-30, 2011. Invited talk.

Wan, J., W. Dong, T. K. Tokunaga, A New Method to Immobilize U(VI) in Acidic Waste Plumes. Attenuation- Based Remedies in Subsurface-2011 Technical Meeting, Aiken SC, March 29-30, 2011. Invited talk.

Wan, J., Why wettability is important in geological CO_2 sequestration. The Berkeley Lectures on Energy, Chemical And Biomolecular Engineering, UCB, October 27, 2011, Guest lecture.

Wan, J., Y. Kim, J. Jung, Wettability alteration upon interaction with $scCO_2$: Calcite, silica, and mica, Center for Nanoscale Control of Geologic CO_2 Fall 2010 Symposium, October 3-4, 2011, Oral presentation.

Wan, J. Y. Kim, and J. Jung, Silica wettability alteration upon reaction with $scCO_2$ and pore scale visualization and contact angle measurements. Goldschmidt Conference, Prague, August 14-19, 2011, Oral presentation.

Dong, W., **J. Wan**, M. Denham, J.C. Seaman, S. Rakshit, T.K. Tokunaga, N. Spycher, S.S. Hubbard, Geochemical characteristics of the contaminant waste plume in the F-Area of the Savannah River Site:

From kilometer to micrometer scales. American Geophysical Union, Fall Meeting, San Francisco, Dec. 13-17, 2010.

Torkzaban, S., **J. Wan**, T.K. Tokunaga, Impacts of cation type and clay on transport of surface-modified nanoparticles through saturated sand columns. American Geophysical Union, Fall Meeting, San Francisco, Dec. 13-17, 2010.

Wan, J., M. Mulvihill, S. Torkzaban, Y. Kim, T.K. Tokunaga, S. Habas, T. Mokari, Stability and transport of engineered nanoparticles in subsurface porous media, SBR (ERSP) Annual PI Meeting, Washington, DC, March 29-31, 2010.

Daly, R.A., C.A. Osborne, H.C. Lim, Y. Kim, D. Bradbury, D.J. Herman, **J. Wan**, T.K. Tokunaga, Z. He, J. Zhou, E.L. Brodie, M.K. Firestone, Microbial community trajectories in response to accelerated remediation of subsurface metal contaminants, SBR (ERSP) Annual PI Meeting, Washington, DC, March 29-31, 2010.

Spycher, N., D. Sassen, **J. Wan**, J.N. Christensen, S. Mukhopadhyay, S. Molins, C. Steefel, A. Weidmer, W. Stringfellow, S.S. Hubbard, M. Denham, J. Seaman, Characterization and simulation of plume mobility at the SRS F-Area using a reactive facies approach, SBR (ERSP) Annual PI Meeting, Washington, DC, March 29-31, 2010.

Wan, J., and S.S. Hubbard, Geochemical behavior of uranium in acidic waste plumes at F-Area, Savannah River Site, SBR (ERSP) Annual PI Meeting, Washington, DC, March 29-31, 2010.

Tokunaga, T.K., Y. Kim, **J. Wan**, S.R. Sutton, M. Newville, Y. Choi, Uranium immobilization in oxidizing environments: Testing interactions with vanadate, SBR (ERSP) Annual PI Meeting, Washington, DC, March 29-31, 2010.

Torkzaban, S., **J. Wan**, T.K. Tokunaga, Transport and Retention of CdTe Nanoparticles in Saturated Porous Media, American Geophysical Union, Fall Meeting, San Francisco, Dec. 14-18, 2009.

Wan, J., U(VI) fate and transport after the largest single waste liquid spill in the U.S. Department of Energy's Hanford Site. International workshop on radionuclide migration and waste disposal, Peking University, Beijing, China, October 12-16, 2008. Invited talk.

Wan, J., Reactions and Transport of U(VI) through Vadose Zone at the Hanford Site. Glenn T. Seaborg Center Seminars, LBNL, May 14, 2008. Seminar.

Wan, J., T.K. Tokunaga, J. Larsen, E. Brodie, Z. Wang, Z. Zheng, D. Herman, T.C. Hazen, M.K. Firestone, S. Sutton. Reoxidation of bioreduced uranium under reducing conditions. NABIR PI Workshop, Warrenton, VA, April 18, 2005.

Wan, **J.**, T.K. Tokunaga, J.T. Larsen, and Zheng, Z., Colloid formation and transport at waste plume fronts. American Geophysical Union, Fall Meeting, San Francisco, Dec. 13-17, 2004.

Zheng, Z., and **J. Wan**, Geochemical factors affecting release of U(VI) from soils. American Geophysical Union, Fall Meeting, San Francisco, Dec. 13-17, 2004.

Tokunaga, T.K., K.R. Olson, and **Wan**, **J.**, Infiltration flow path distributions in unsaturated rocks. American Geophysical Union, Fall Meeting, San Francisco, Dec. 13-17, 2004.

Wan, J., T. K. Tokunaga, J. Larson, Z. Zheng, T. C. Hazen, D. Herman, E. Brodie, M. K. Firestone. Oxidation of bioreduced uranium under reducing conditions. International Symposium on Microbial Ecology, Cancun, Mexico. August 2004.

Wan, J., T. Tokunaga, T. Hazen, M. Firestone, Z. Zheng, E. Brodie, J. Larsen, Z. Zheng, D. Herman. Mesoscale coupled transport and biogeochemical effects on reduction of U(VI) and NO_3^- as co-contaminants in natural sediments and soils. NABIR PI Workshop, Warrenton, VA, March 15-17, 2004.

Wan, J., T.K. Tokunaga, J.T. Larsen, Z. Zheng, Evolution of redox tank waste plumes in Hanford vadose zone: A conceptual model developed through reactive transport studies. 225th American Chemical Society National Meeting Location: New Orleans. March 23-27, 2003. Oral presentation.

Wan, J., T. K. Tokunaga, T. C. Hazen, M. K. Firestone, E. Schwartz, K. R. Olson, S. R. Sutton, M. Newville, A. Lanzirotti, and W. Rao. Invited. Bridging the batch-field gap: Chromium biogeochemistry in diffusion–limited domains. March 2002, Warrenton, VA. NABIR Program Annual PI Meeting.

Wan, J., T.K. Tokunaga, E. Saiz, K. Olson, R. Couture, Secondary colloids formed during leakage of tank waste solution into Hanford vadose zone sediments. 222nd National Meeting of the American Chemical Society, Chicago, August 26-30, 2001. Oral presentation.

Wan, J., T. K. Tokunaga, D. Joyner, T. C. Hazen, M. Firestone, E. Schwartz, S. Sutton, and M. Newville, Mesoscale Biotransformation Dynamics Controlling Reactive Transport of Chromium, NABIR PI Workshop, Warrenton, Virginia, March 12, 2001.

Wan, J., T. K. Tokunaga, D. Joyner, T. C. Hazen, M. Firestone, E. Schwartz, S. Sutton, and M. Newville, Mesoscale Biotransformation Dynamics Controlling Reactive Transport of Chromium, NABIR PI Workshop, Reston, Virginia, Jan. 31, 2000.

Veerapaneni, S., **J. Wan**, and T. Tokunaga, Motion of particles in flowing liquid films, 217th National Meeting of the American Chemical Society, Anaheim, March 21-25, 1999.

J. Wan, T. Tokunaga. Quantifying colloid sorption at gas-liquid interfaces. The 5th Int. Symp. on Evaluation of Reservoir Wettability and its Effect on Oil Recovery, Trondheim, Norway, June 22-24, 1998.

Wan, J., and T.K. Tokunaga, Measuring humic acid partitioning at air-water interfaces using static and dynamic methods. Am. Geophys. Union Fall Meeting, San Francisco, CA, Dec.8-12, 1997.

Awards and Honors

- "Outstanding Contributions in Geosciences Research" from U.S. Department of Energy Office of Basic Energy Science, August 1998.
- The Langmuir Award, from New Mexico Institute of Mining and Technology, 1995.
- First place as "Outstanding Dissertation Award for the Water Resources" in Environmental and Biological Sciences, The Universities Council of Water Resources, 1993.
- Graduate Student Award, Division of Environmental Chemistry of Am. Chem. Soc. 1993.
- Graduate Student Paper Award, from the American Chemical Society, 1993.

Grant Awards (as lead PI) through Peer-Reviewed Competitive Proposals

- 2008-2010 ($1.5 M), DOE–BER: Environmental impacts of engineered nano-materials.
- 2006-2008 ($1.4 M), DOE–ERSP: Hydrological and geochemical studies of alkaline plumes at the 200 Area the Hanford Site.
- 2003-2005 ($1.2 M), DOE–EMSP: Development of U waste plumes at the Hanford Site.
- 2005-2007 ($0.6 M), DOE–BES: Nanoparticles fate and transport in the subsurface.
- 2002-2004 ($ 1.12 M), DOE–NABIR: Coupled transport and bioreduction of U(VI) in sediments.
- 2000-2002 ($ 1.0 M), DOE–EMSP: Evolution of alkaline-saline waste plumes in the Hanford Site
- 2002-2004 ($ 0.6 M), DOE–BES: Interfacial properties of colloids and nanoparticles in subsurface.
- 1999-2001 ($ 1.2 M), DOE–NABIR: Mesoscale biotransformation dynamics of Cr and U
- 1999-2001 ($ 0.6 M), DOE–BES: Unsaturated flow and colloid transport

- 1997-1999 ($1.2 M), DOE–EMSP: Sorption of organics and metals onto gas-water interfaces: implications on contaminant transport and remediation
- 1996-1998 ($ 0.6 M), DOE–BES: Colloid transport in unsaturated porous media.

Service to Scholarly Journals as a reviewer for:

- 1998-present - Environmental Science & Technology
- 1997-present - Water Resources Research
- 2002-present - Journal of Colloid & Interface Science
- 2005-present - Geochimica et Cosmochimica Acta
- 2007-present - Vadose Zone Journal
- 2008-present - Journal of Contaminant Hydrology
- 2012-present - Energy and Fuel

Research Supervision and Mentoring:

Cong Chen (2013-current, visiting professor, Dalian University of Technology)
Prem Bikkina (June 2013-current, Postdoc)
Wenming Dong (2009-current, Science Engineering Associate)
Jongwon Jung (2010-2012, Postdoc)
Guang Shi (2011-2012, Postdoc)
Martin Mulvihill (2010-2011, Molecular Foundry Postdoc, funded by my project)
Susan Habas (2009-2010, Molecular Foundry Postdoc, funded by my project)
Saeed Torkzaban (2009-2011, Postdoc)
Thomas He (2005-2007, Postdoc)
Guiling Han (2005-2006, Visiting Scientist)
Joern Larsen (2003-2005, RA)
Jasquelin Pena (2002-2004, RA)
Zuoping Zheng (2002-2004, Postdoc)
Frederic Gadelle (2000-2002, Postdoc)
Egbert Schwartz (1999-2001 UCB Postdoc, funded by my project)
Srinivas Veerapaneni (1999-2001, Postdoc)
Gordon Vrdoljak (1999-2000, postdoc)
Dominic Joyner (1998-2000, RA)
Mark Yahnke (1998-1999, RA)
Ann Sweet (1997-1998, RA)

Community Service: As a Professional Mentor for TechWomen in 2013. Twice served as a member of LBNL's search committee for ESD Division Director. Served as a member of several search committees for scientist positions. Served as a member of the Diversity Committee for one term. Hosted numerous LBNL summer interns in my laboratory and provided funding for some of them. Provided service at LBNL Open House events, and Daughters and Sons to Work Day. Volunteered as a science educator for elementary and middle schools (Cragmont School, The Academy, and Black Pine Circle School, in Berkeley), giving science topic lectures, hands on classroom demonstrations, and serving as science fair judge.